



XXIX IFSO World Congress

1-4 September 2026 | Toronto, Canada

CLINICAL ASSESSMENT OF OBESITY: WHAT TO MEASURE, HOW TO MEASURE IT, AND WHY IT MATTERS

TORONTO2026

The Future of Obesity Management:
From Weight Loss to Health Gain

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ifso2026.org

Disclosures- Philip Schauer MD

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SE Healthcare LLC		x				x		
Mediflix		x				x		
MHI LTC		x				x		



OBESITY DEFINITIONS AND CLASSIFICATION SYSTEMS

YEAR	AUTHOR(s)	CONTRIBUTION
1830	Adophe Quetelet	Quetelet Index –body weight divided by height squared, later BMI
1972	Ancel Keys	Validated BMI and its correlation with adiposity across diverse populations-
1981	J.S Garrow	First to stratify Obesity into degrees of severity based on BMI
1995-1997,2000	WHO	Codified categories of Overweight, Obesity class I,II,III based on risk
2009	Sharma, Kushner	Edmonton Obesity Staging System (0-40) disease burden
2023	AACE	Complications Based Classification (A-D)
2024	IFSO	Class IV(BMI 50-59.9), Class V (> BMI 60)
2024	EASO	Diagnosis, staging, management framework
2025	Lancet Commission	Diagnostic Criteria for Clinical and Pre-Clinical Obesity



The *WHO* diagnosis of obesity

- Obesity is defined by the World Health Organization (WHO) as *excess abnormal body fat, which may impair health*
- Body mass index (BMI) is a good population measure of body fat and an imperfect measure in individuals

For Europids:

Overweight BMI $>25 \text{ kg/m}^2$

Obesity BMI $>30 \text{ kg/m}^2$

Waist circumference: 35 inches for women & 40 inches for men

Jensen MD, et al. *Obesity*. 2014;22(S2):S1-S410.

For Asians:

Overweight BMI $>23 \text{ kg/m}^2$

Obesity BMI $>25 \text{ kg/m}^2$

Waist circumference: 31.5 inches for women & 35 inches for men

WHO/IASO/IOTF, 2000.

(http://www.idi.org.au/obesity_report.htm)



How did BMI gain dominance?



Lambert Adolphe Francois Quetelet (1796–1874)

body weight (kg)
divided by the square
of height (m²)
BMI =(kg/m²)

1972: BMI has best
correlation with %body
fat measured by
densitometry and sum
of 2 skinfolds

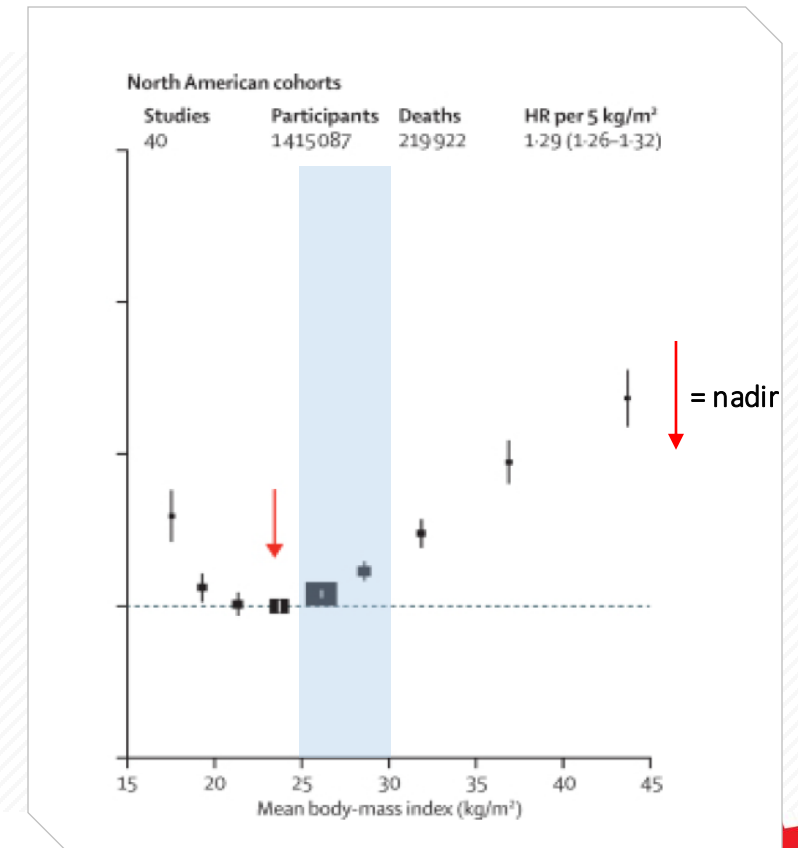
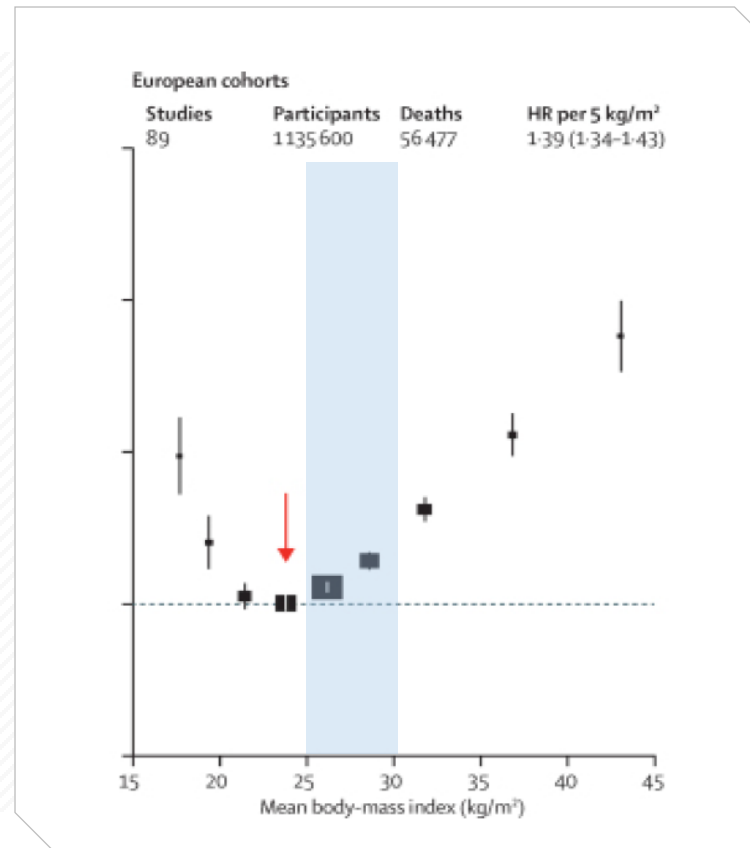
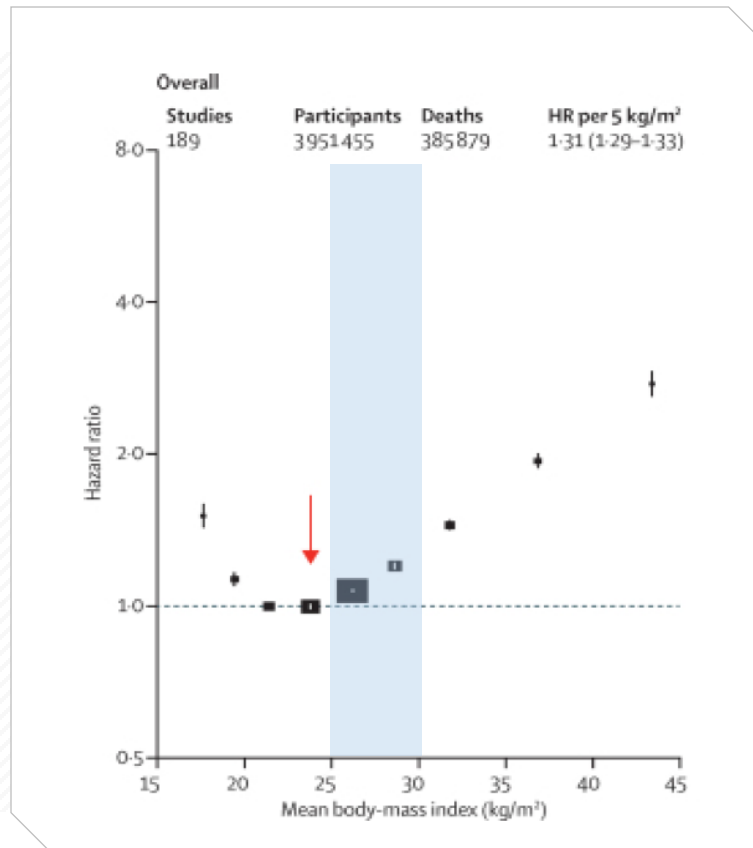


Ancel Benjamin Keys (1904–2004)



BMI and All-Cause Mortality

Association Between BMI and All-Cause Mortality Among Never-Smokers,
by Region (Europe and North America)



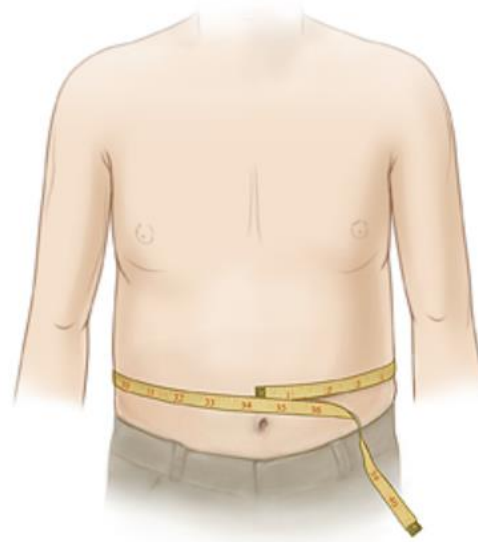
Measuring Regional Fat Changed the View of Obesity



- Jean Vague 1947
- Android vs Gynoid body fat distribution and cvd risk



How and When to Measure Waist Circumference



- Waist circumference is measured by placing a measuring tape around the abdomen at the level of the superior border of the iliac crest
- Waist circumference >88 cm (>35 in) for women and >102 cm (>40 in) for men is associated with a higher risk of adverse metabolic consequences of adiposity, regardless of BMI category

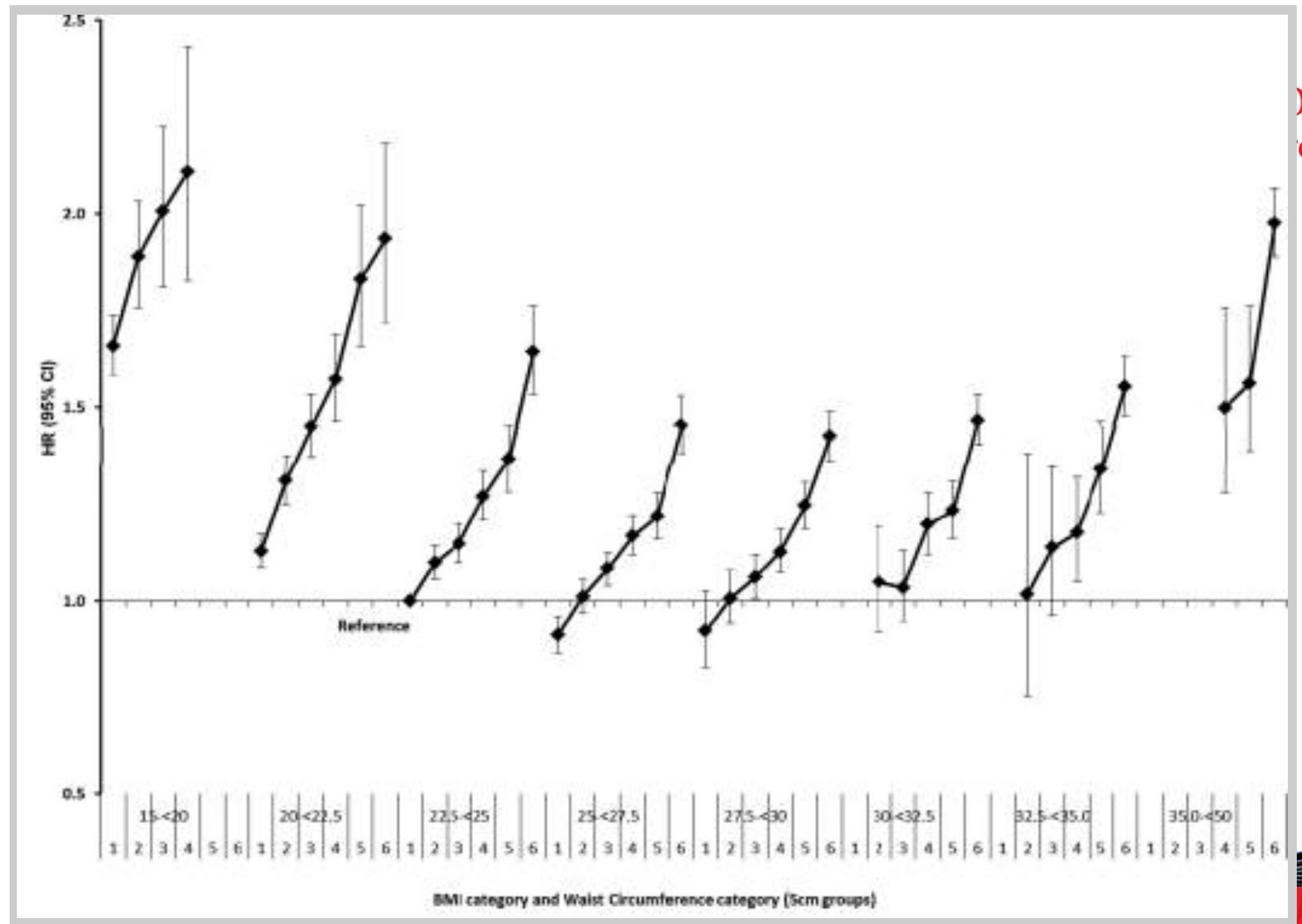
Jensen MD, et al. *Circulation*. 2013;129(Suppl 2):S102-S138.

Ross R, et al. *Nature Rev Endocrinol*. 2020(3);16:177-189.



↑ WC and mortality risk across different BMI classes:

↑ WC = ↑ risk at any BMI category



Use of BMI alone is an imperfect clinical measure



The newly adopted AMA policy also states that:

- BMI is significantly correlated with the amount of fat mass in the general population but **loses predictability when applied on the individual level.**
- Relative body shape and composition heterogeneity across **race and ethnic groups, sexes, genders and age-span** is essential to consider when applying BMI as a measure of adiposity.
- The use of BMI should **not be used as a sole criterion** to deny appropriate insurance reimbursement.

American Medical Association. AMA adopts new policy clarifying role of BMI as a measure in medicine. June 14, 2023. Accessed November 3, 2025. <https://www.ama-assn.org/press-center/press-releases/ama-adopts-new-policy-clarifying-role-bmi-measure-medicine>



How we define obesity – the current dueling paradigms

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EASO
Framework



LANCET
Commission



Approach to Diagnosis of Obesity, adapted from the EASO Framework

Anthropometric Component

- High Risk
(BMI ≥ 25 kg/m² AND WtHR ≥ 0.5)
- BMI ≥ 30 kg/m²

Clinical Component

- Medical Issues
- Functional Issues
- Mental Issues

Diagnosis of Obesity The “BMI Plus” approach

BMI ≥ 30 kg/m² *OR*
BMI ≥ 25 kg/m² AND WtHR ≥ 0.5
PLUS

medical, functional, or psychological
impairments or complications



The Lancet Diabetes & Endocrinology Commission

January 15, 2025

Definition and diagnostic criteria of clinical obesity



Francesco Rubino, David E Cummings, Robert H Eckel, Ricardo V Cohen, John P H Wilding, Wendy A Brown, Fatima Cody Stanford, Rachel L Batterham, I Sadaf Farooqi, Nathalie J Farpour-Lambert, Carel W le Roux, Naveed Sattar, Louise A Baur, Katherine M Morrison, Anoop Misra, Takashi Kadowaki, Kwang Wei Tham, Priya Sumithran, W Timothy Garvey, John P Kirwan, José-Manuel Fernández-Real, Barbara E Corkey, Hermann Toplak, Alexander Kokkinos, Robert F Kushner, Francesco Branca, Jonathan Valabhji, Matthias Blüher, Stefan R Bornstein, Harvey J Grill, Eric Ravussin, Edward Gregg, Noor B Al Busaidi, Nasreen F Alfari, Ebaa Al Ozairi, Lena M S Carlsson, Karine Clément, Jean-Pierre Després, John B Dixon, Gauden Galea, Lee M Kaplan, Blandine Laferrère, Martine Laville, Soo Lim, Jesús R Luna Fuentes, Vicki M Mooney, Joseph Nadglowski Jr, Agbo Urudinachi, Magdalena Olszanecka-Glinianowicz, An Pan, Francois Pattou, Philip R Schauer, Matthias H Tschöp, Maria T van der Merwe, Roberto Vettor, Geltrude Mingrone

Executive summary

Current BMI-based measures of obesity can both underestimate and overestimate adiposity and provide inadequate information about health at the individual level, which undermines medically-sound approaches

measurement of body fat, where available, or at least one anthropometric criterion (eg, waist circumference, waist-to-hip ratio, or waist-to-height ratio) in addition to BMI, using validated methods and cutoff points appropriate to age, gender, and ethnicity. In people with

Lancet Diabetes Endocrinol 2025
Published Online
January 14, 2025
[https://doi.org/10.1016/S2213-8587\(24\)00316-4](https://doi.org/10.1016/S2213-8587(24)00316-4)
For the Arabic Chinese French

Video

Video 1 Video 2



Watch part 1 of the global launch of the *Lancet Diabetes & Endocrinology* Commission on Clinical Obesity. Copyright: King's Health Partners AHSC



Offline: Making obesity matter



"None of us were entirely right, none of us were entirely wrong." That was Francesco Rubino's wry comment on his Commission, published by *The Lancet Diabetes and Endocrinology* on Jan 14, 2025, and launched at the Royal College of Physicians in London. The scope of the project was narrow—the definition of obesity—but the implications were colossal. The Commission identified a major and, in truth, surprising gap: the absence of a clinical definition of obesity. It is worth pausing for a moment and reflecting on the scale of the clinical challenge and why this omission matters so much. Donald Trump was this week inaugurated the 47th US President. He begins

definitions and diagnostic criteria for entities they call preclinical and clinical obesity. Instead of measuring obesity with an abstract number (body-mass index, BMI) that neither doctors nor the public find intuitive or meaningful, Rubino and colleagues have reframed obesity as a chronic illness characterised by excess adiposity, together with alterations in the functioning of tissues, organs, or the whole body. Preclinical obesity is an observable phenotype—excess adiposity, but with no symptoms or signs of organ damage. After more than 5 years of work, their Commission has radically rewritten our understanding of what it means to be obese.

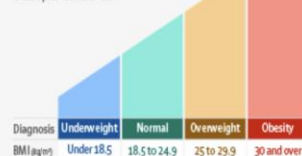


Diagnosing clinical obesity

Limitations of the current definition of obesity

Obesity is currently defined solely by an individual's body mass index (BMI)

The criteria for populations of European descent* are:

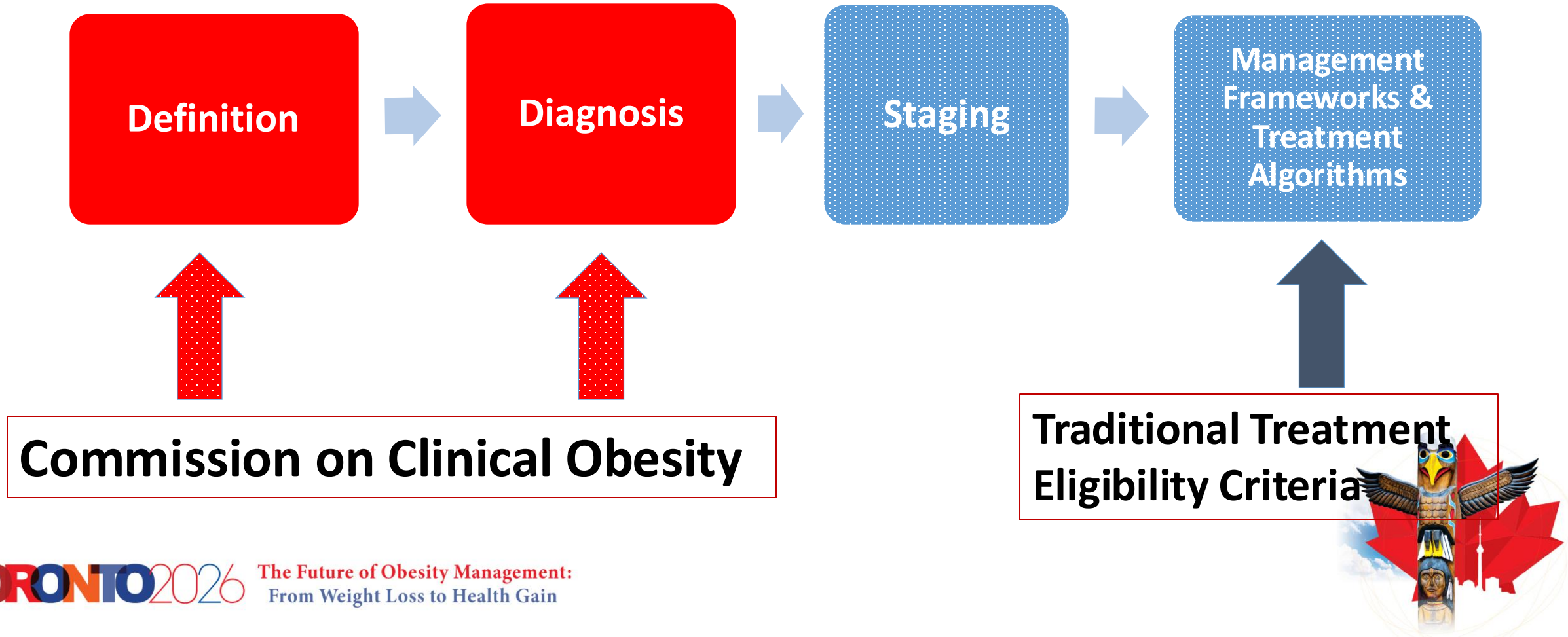


*Criteria for other ethnic groups are different

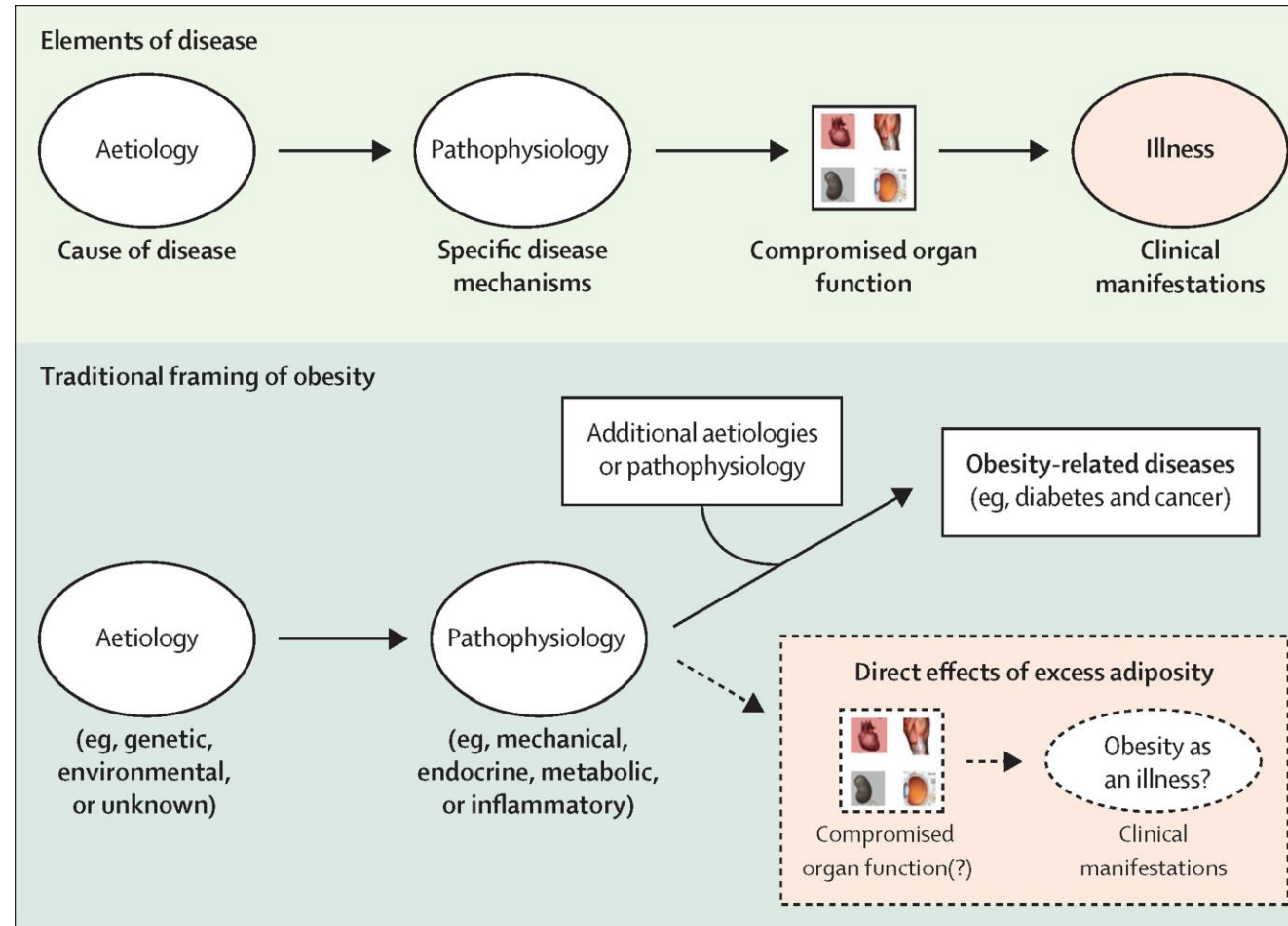
Relying on BMI alone to establish if someone has obesity is problematic as this can inaccurately classify a person as having or not having excess body fat, and also lead to under-diagnosis of many whose health is impaired and over-diagnosis of many who are healthy.

From Weight Loss to Health Gain

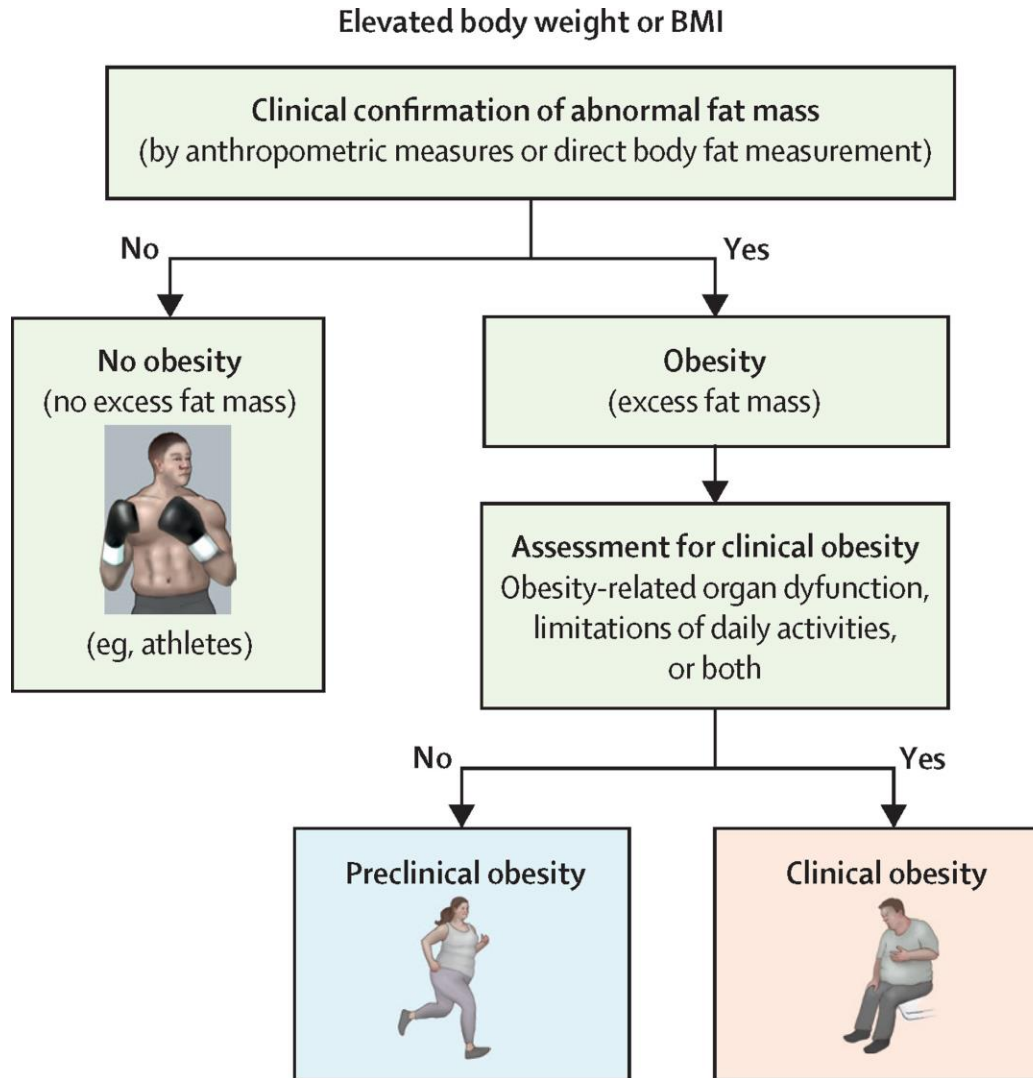
Definition and Diagnosis of Clinical Obesity



Lancet Commission: Standard Disease Diagnosis Definition



LANCET Commission Definition of Obesity/Clinical Obesity



	Preclinical obesity	Clinical obesity
Excess adiposity	 +  (BMI) (Waist circumference, etc)	 +  (BMI) (Waist circumference, etc)
Mechanisms and pathophysiology	Alterations of cells and tissue → Alterations of organ structure	Alterations of organ function → End-organ damage
Clinical manifestations	Minor or absent (substantially preserved organ function)	Signs and symptoms Limitations of daily activities Complications
Detection and diagnosis	Anthropometrics, medical history, review of organ systems, and further diagnostic assessment as needed   	



The diagnosis of Clinical Obesity requires:

A. **Clinical confirmation of obesity status**

by anthropometric criteria (e.g. WC, WHR) or by direct body fat measurement

Plus one or both of the following criteria:

B. **Evidence of reduced organ/tissue function due to obesity**

(i.e. signs, symptoms and/or diagnostic tests showing abnormalities in the function of one or more tissue/organ system)

C. **Significant, age-adjusted limitations of day-to-day activities**

reflecting the specific impact of obesity on mobility and/or other basic Activities of Daily Living (ADL = bathing, dressing, toileting, continence, eating).



Step 1: Confirmation of Excess Body Fat

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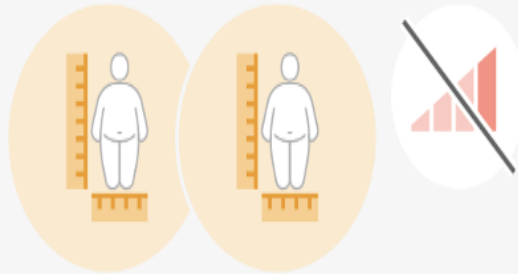
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Excess body fat

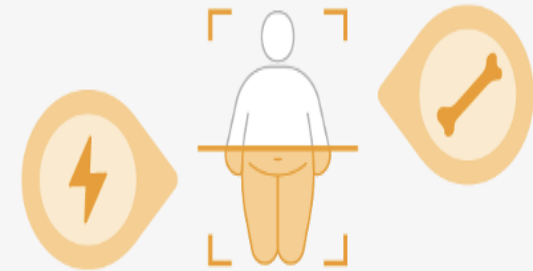
The first step in such a diagnosis is confirming excess body fat, which can be achieved via one of the following three criteria:



At least one measurement of
body size and BMI



At least two measurements of
body size, regardless of BMI



Direct body fat measurement,
such as a DEXA scan

For BMI > 40kg/m² Excess body fat can be assumed



Anthropometric Measurements of Obesity

- **Body Mass Index (BMI):** Calculated as weight in kilograms divided by height in meters squared (kg/m^2). A BMI of $30 \text{ kg}/\text{m}^2$ or higher indicates obesity, though it measures excess weight rather than direct body fat.
- **Waist Circumference (WC):** Measures abdominal fat by placing a tape measure horizontally midway between the lowest rib and the iliac crest (top of the hip bone). An elevated risk is generally $\geq 102 \text{ cm}$ (40 in) for men and $\geq 88 \text{ cm}$ (35 in) for women.
- **Waist-to-Hip Ratio (WHR):** Calculated by dividing waist circumference by hip circumference. Values above 0.90 for men and above 0.85 for women indicate high central adiposity.
- **Waist-to-Height Ratio (WHtR):** Calculated by dividing waist circumference by height. A ratio greater than 0.50 suggests increased cardiometabolic risk.



Clinically Applicable Body Composition Methods

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ADP

Assumes two compartment model (fat and lean) with different density. Volume of displaced air determined from changes in air pressure



DXA

Attenuation of 2 energy level x-ray transmissions (absorbed or scattered). Measures bone and soft tissue



MF-BIA

Uses electrical properties of body to estimate TBW and from that the body fat mass. Body is modeled as 5 cylindrical compartment



3-D DA

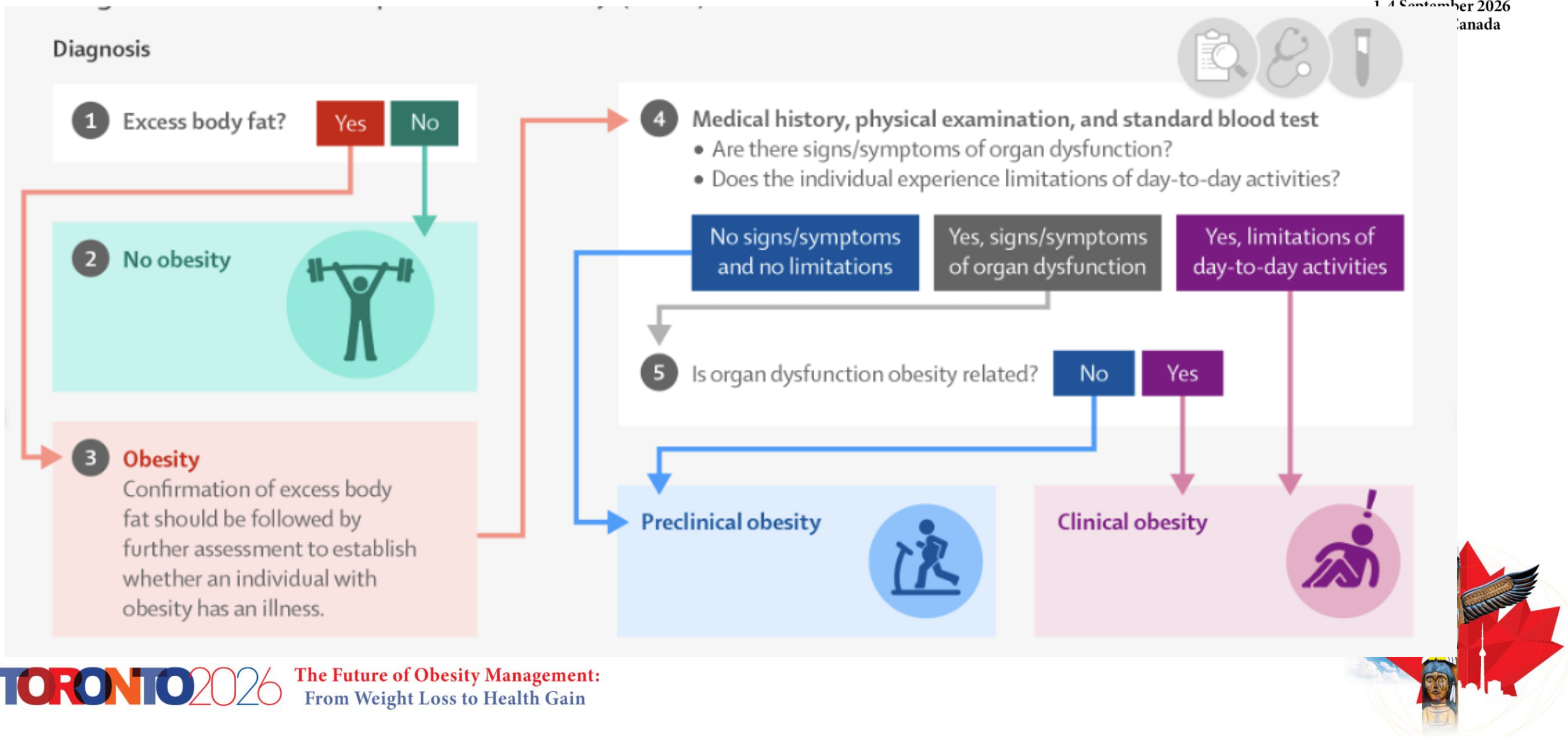
Smartphone app scans and quantifies body anthropometric dimensions and volume, estimates body fat by algorithm



Step 2: Assessment of Organ Function and D-to-D Activities

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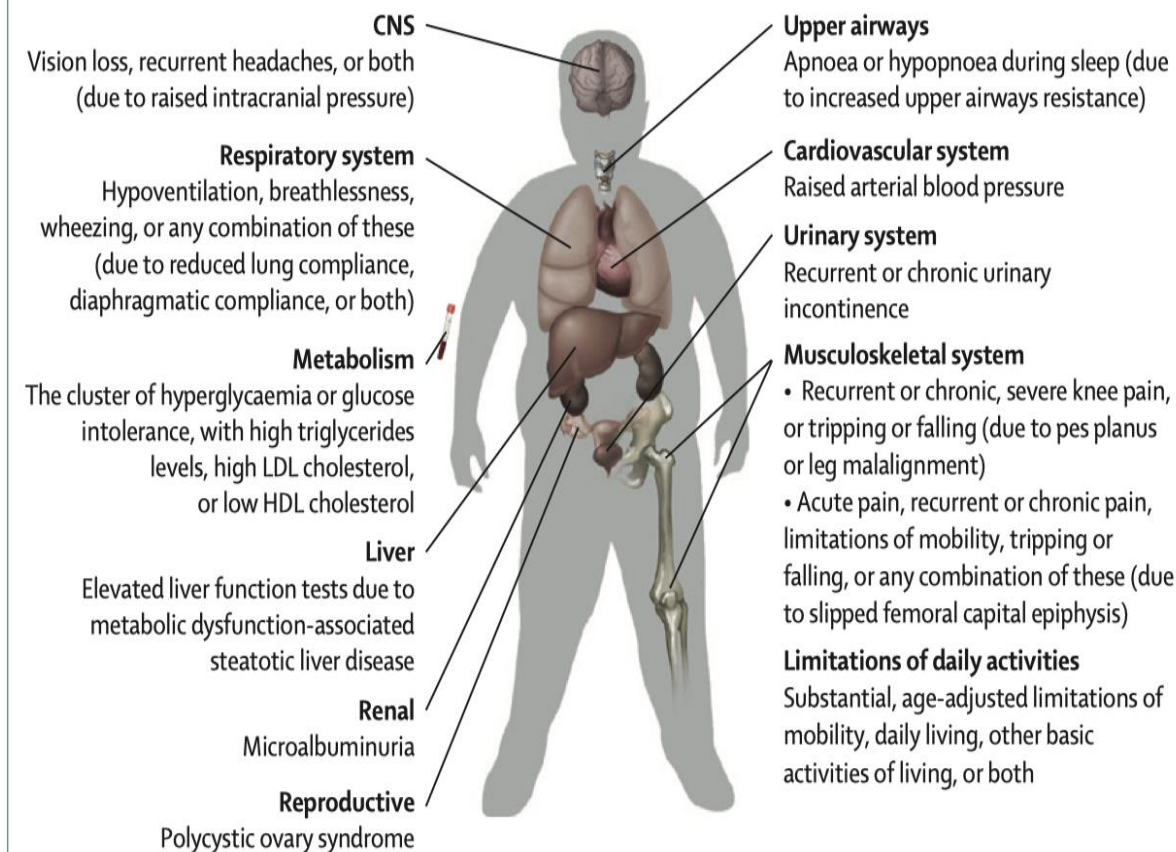
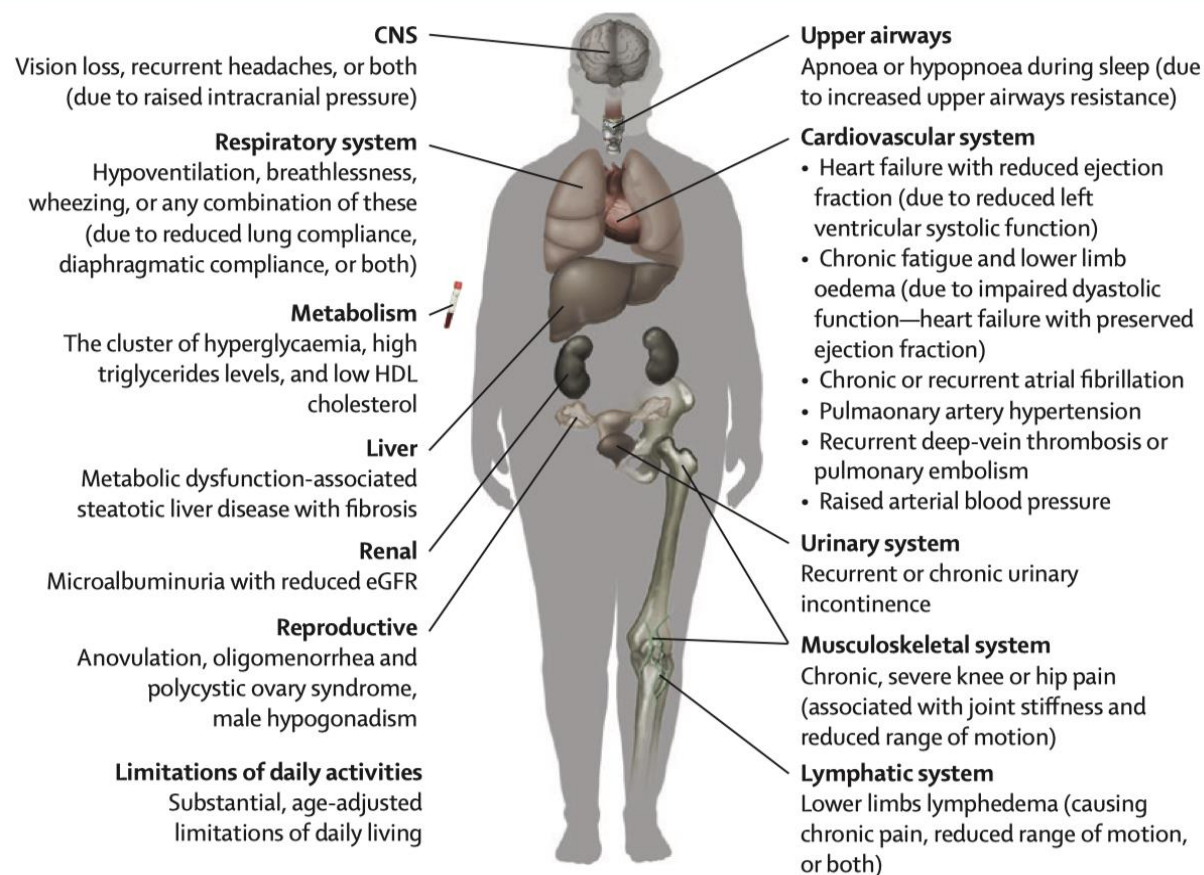
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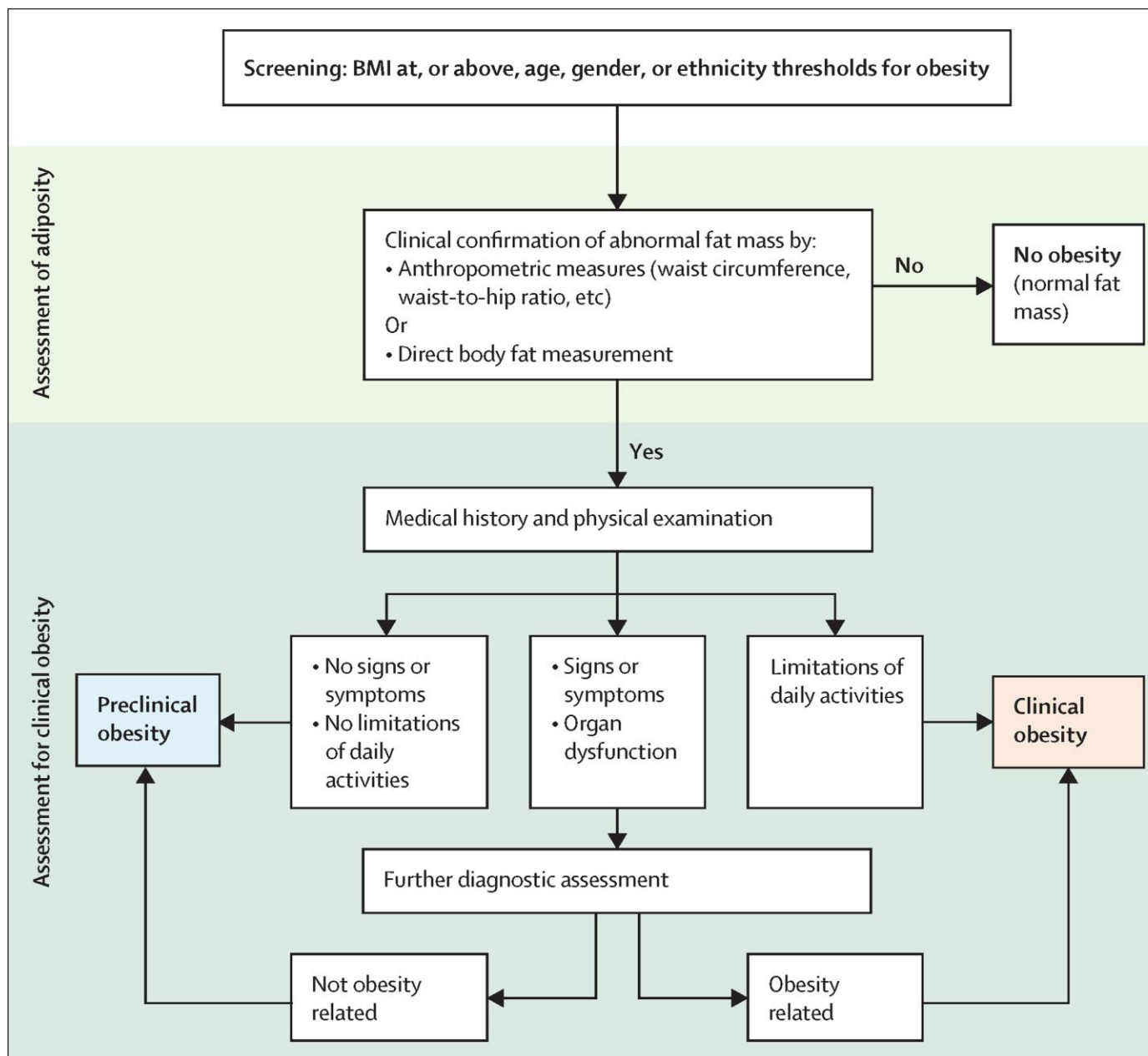


Criteria for Diagnosis of Clinical Obesity in Adults and in Children & Adolescents

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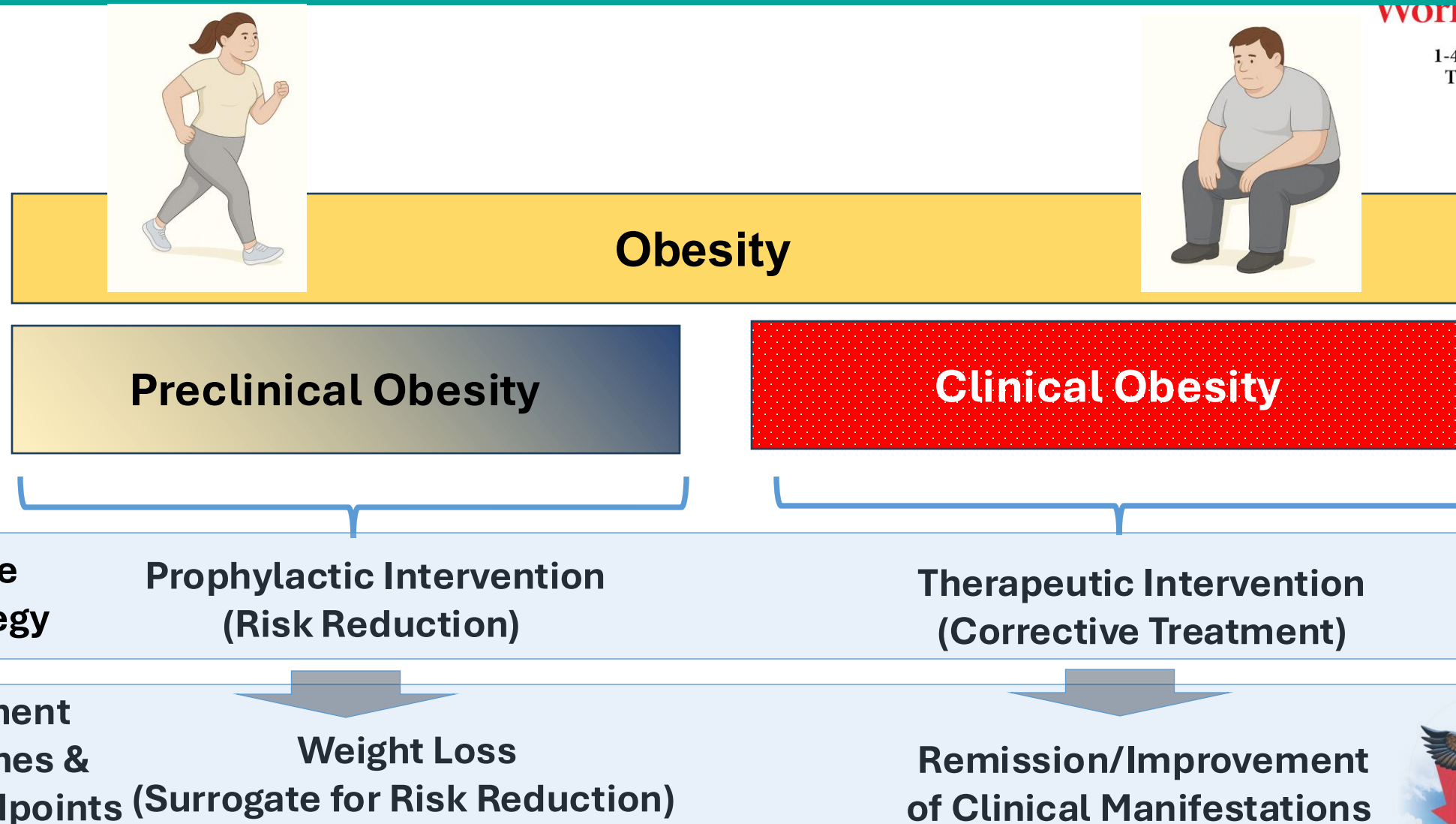




Implications: Care, Policy, Research

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The Purpose of Staging

01

Determining
urgency of
treatment

02

Determining
intensity of
treatment



Edmonton Obesity Staging System (EOSS)

Incorporates Comorbidity Severity



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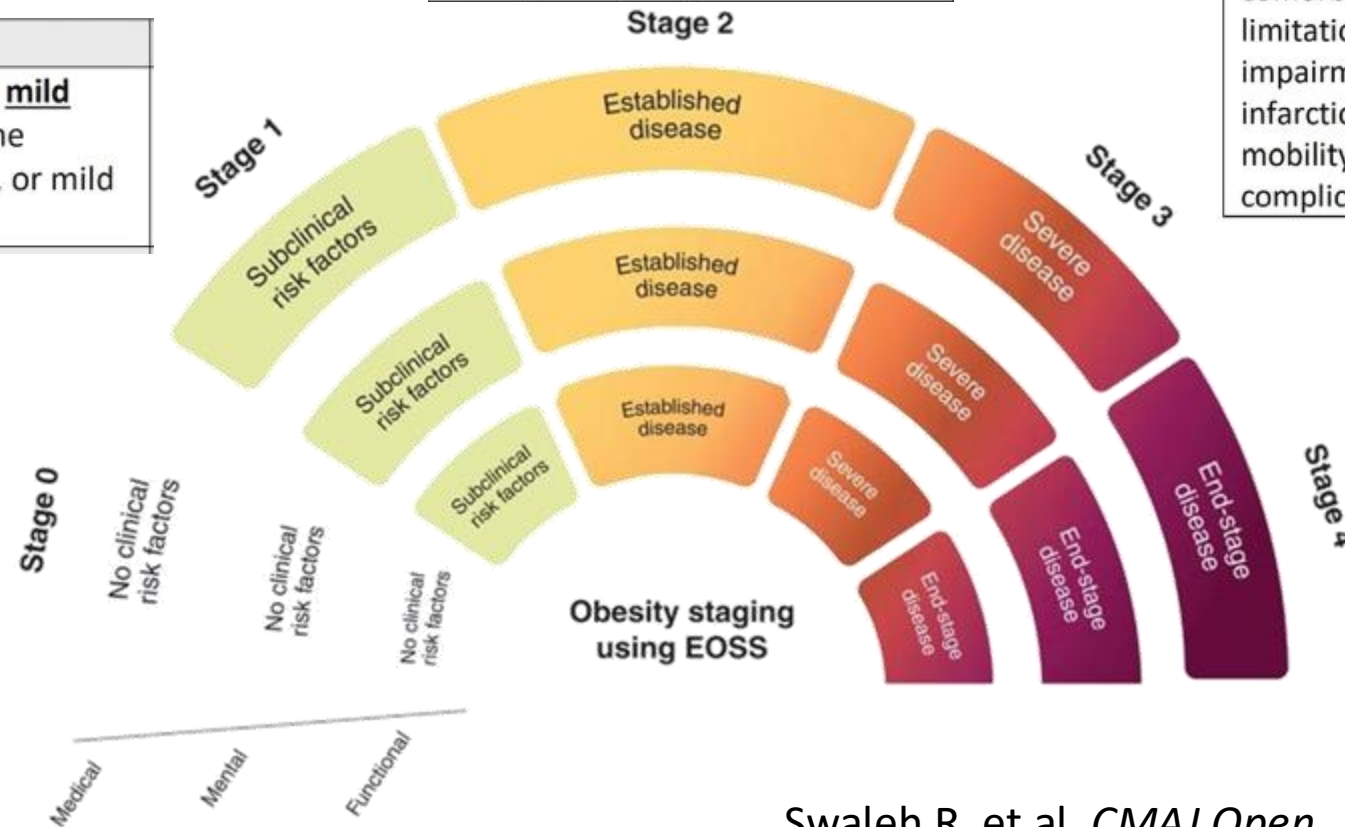
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Stage 1
<u>Subclinical</u> risk factors with <u>mild</u> symptoms such as borderline hypertension, pre-diabetes, or mild osteoarthritis

Stage 2
Established comorbidities requiring medical treatment with <u>moderate</u> symptoms such as depression, HTN, T2DM, GERD, OSA, and HLD

Stage 3
Significant obesity-related comorbidities with <u>significant</u> limitations, end-organ damage, or impairment such as myocardial infarction, suicidal ideation, reduced mobility, stroke, and diabetic complications

Stage 4
<u>Severe</u> (i.e., end-stage) disabling symptoms and limitations such as wheelchair or bed-bound, pulmonary hypertension from OHS, end-stage renal disease from DM nephropathy, and decompensated cirrhosis from NASH

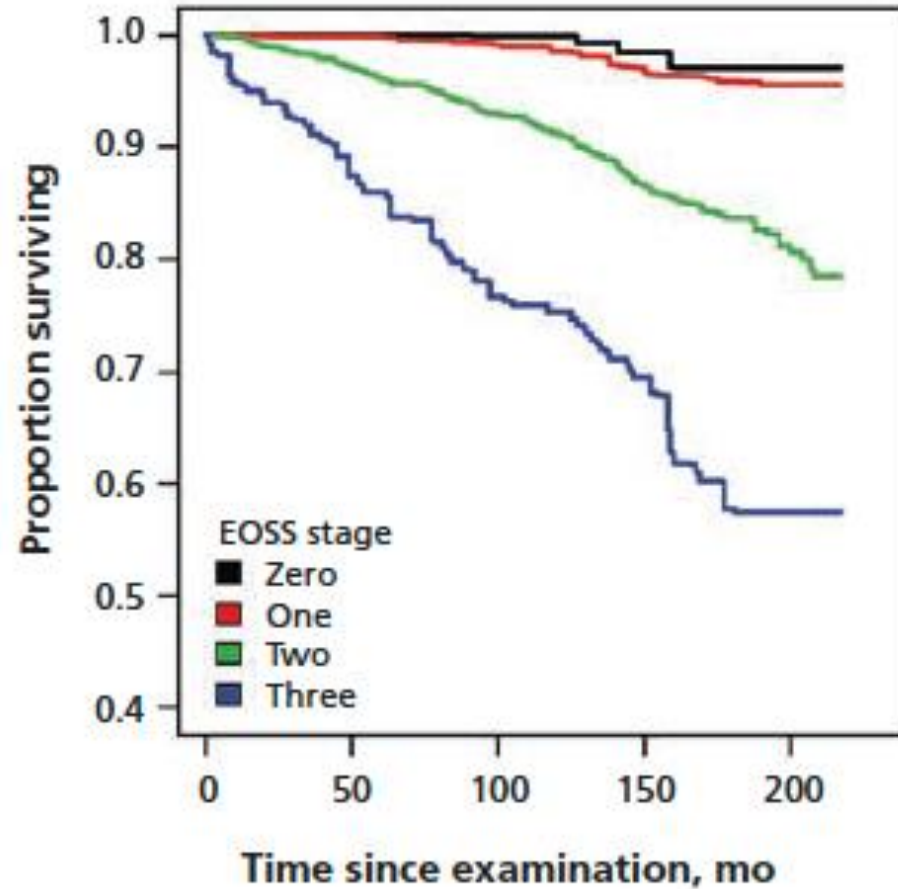


EOSS Predicts Survival More Accurately Than BMI^{1,a}

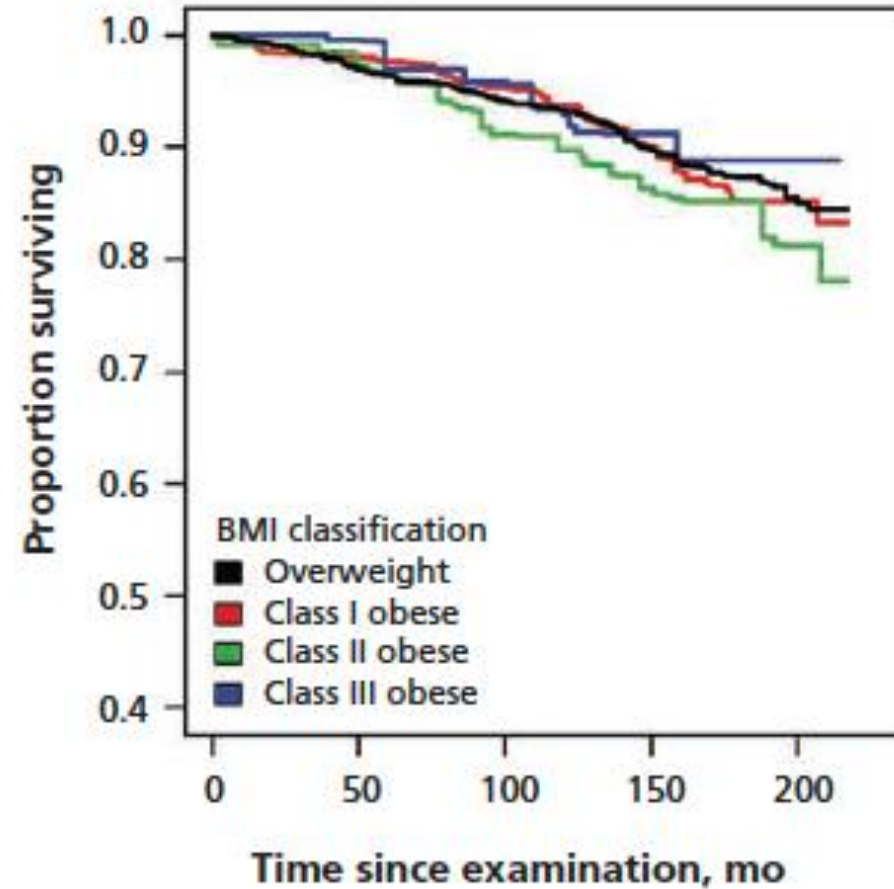
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Survival vs EOSS Stage

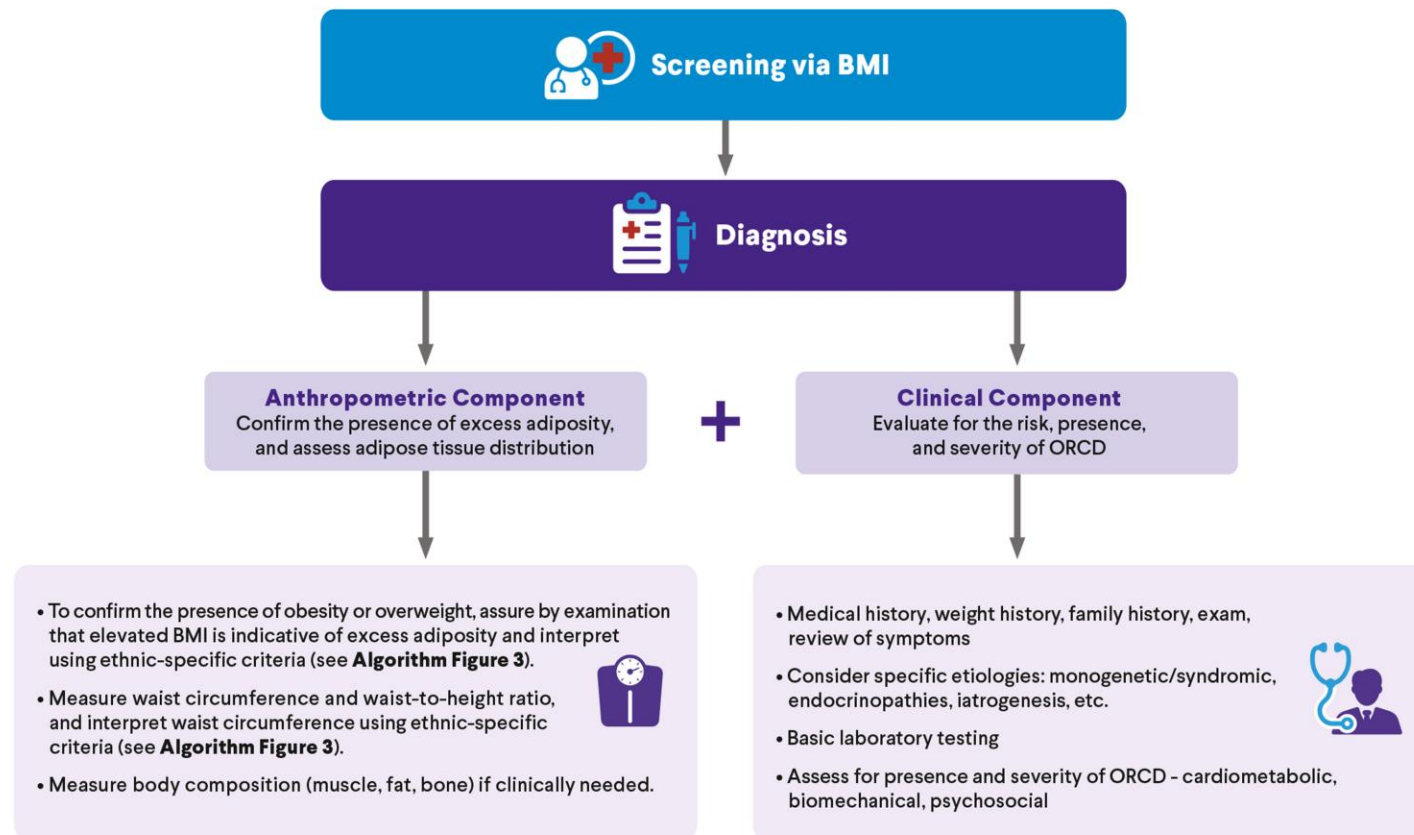


Survival vs BMI Classification



^a Data from United States NHANES III (1988-1994), a demographically representative biometric survey.
Padwal RS et al. *CMAJ*. 2011;183:E1059-E1066.





Abbreviations: **ABCD**, adiposity-based chronic disease; **BMI**, body mass index; **ORCD**, obesity-related complications and diseases

Algorithm Figure 2 - Screening and Diagnosis

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Anthropometric Screening & Classification

Measure BMI
Clinically examine and confirm
excess adiposity



Measure Waist Circumference
for BMI <35.0 kg/m², and
Calculate Waist-to-Height Ratio
for classifying abdominal obesity and cardiometabolic risk

Class	WHO BMI Classification
Overweight ^a	25.0 – 29.9 kg/m ²
Class I Obesity*	30.0 – 34.9 kg/m ²
Class II Obesity	≥35.0 – 39.9 kg/m ²
Class III Obesity	≥40.0 kg/m ²
^a In the Asia-Pacific region, the BMI threshold for obesity is generally considered to be ≥25 kg/m ² and for overweight 23 kg/m ² to 24.9 kg/m ² . See text for additional information.	



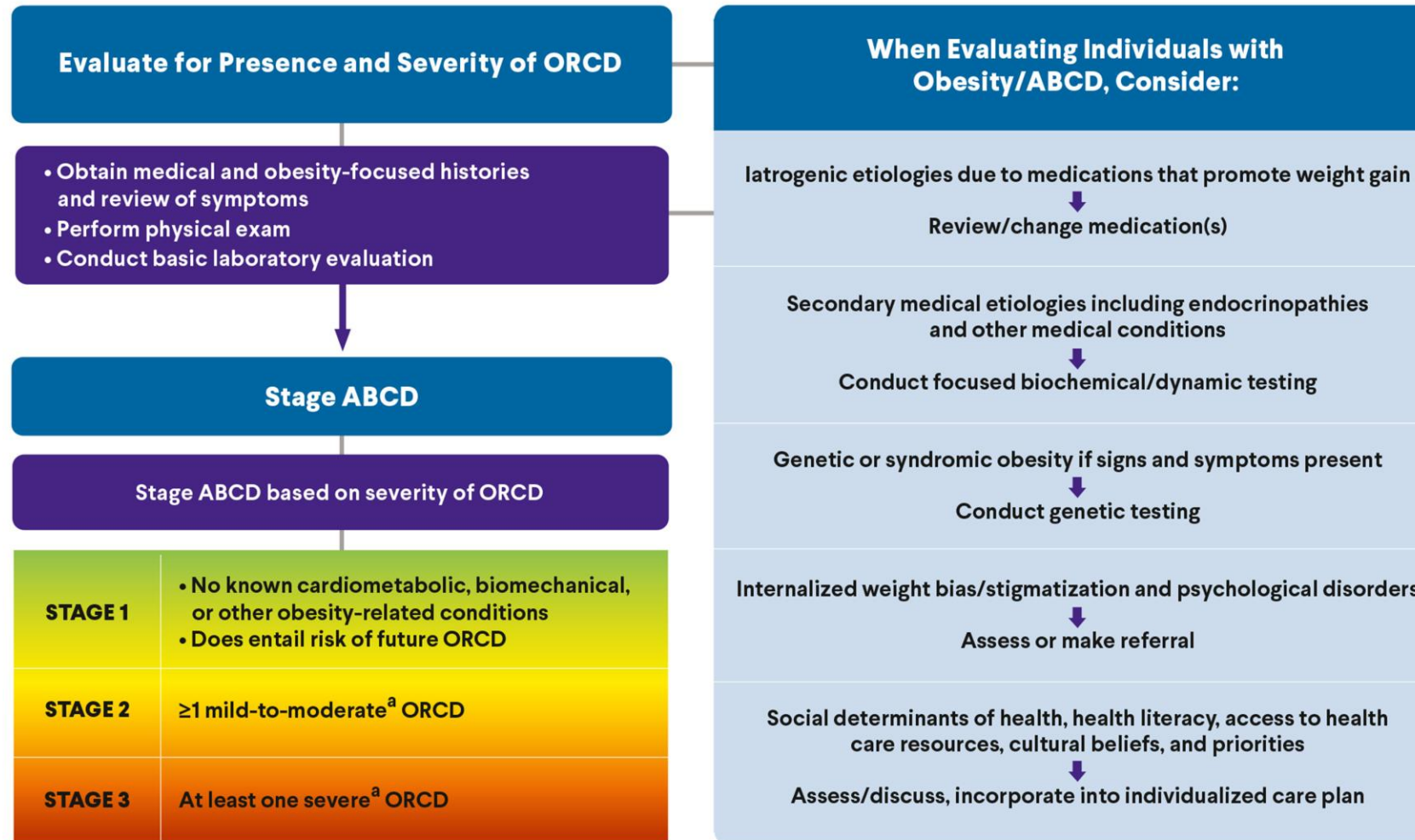
Assess Body Composition
Using, for example, bioelectrical
impedance analysis or DXA if
clinically needed and available

International Diabetes Federation Waist Circumference Criteria for Cardiometabolic Risk ^b			National Institute for Health and Care Excellence, and World Health Organization
Region/Ethnic Background ^c	Sex	Waist Circumference ^d	Waist-to-Height Ratio
Europe, Sub-Saharan Africa, and Middle East	Male	≥94 cm	≥0.5
	Female	≥80 cm	≥0.5
United States & Canada	Male	≥102 cm	≥0.5
	Female	≥88 cm	≥0.5
Asia, South & Central America	Male	≥90 cm	≥0.5
	Female	≥80 cm	≥0.5
^b Darbandi M et al. Discriminatory Capacity of Anthropometric Indices for Cardiovascular Disease in Adults: A Systematic Review and Meta-Analysis. Prev Chronic Dis. 2020 Oct 22;17:E131. ^c See text for additional information. ^d Increasing waist circumference correlates with increased severity of obesity.			Obesity: identification, assessment and management. NICE Guideline, No. 189. London: National Institute for Health and Care Excellence (NICE); 2023 Jul 26. Recommendations 1.2.11 and 1.2.12



DIAGNOSIS: CLINICAL COMPONENT

Adiposity-Based Chronic Disease (ABCD) / Obesity-Related Diseases and Complications (ORCD)



Conclusion

- Definitions of Obesity have evolved beyond BMI alone
- Other measures of excess adiposity included
- Clinical signs and symptoms necessary
- Staging to assess urgency and treatment intensity evolving
- Consensus required for universal adoption



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